MedPAC Comment on HCFA's Risk Adjustment Proposal

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The Balanced Budget Act of 1997 (BBA) required the Medicare Payment Advisory Commission (MedPAC) to comment on the Secretary of Health and Human Services' proposal for adopting health status-based risk adjustment in making payments to Medicare+Choice organizations. The Health Care Financing Administration (HCFA) submitted the Secretary's proposal, entitled *Report to Congress: Proposed Method of Incorporating Health Status Risk Adjusters Into Medicare+Choice Payments*, on March 1, 1999. This comment fulfills MedPAC's mandate.

Overview of our comments

The BBA required the Secretary to begin making payments to Medicare+Choice organizations on January 1, 2000, using a new risk adjustment method that accounts for health status differences among beneficiaries. This requirement was motivated by concerns about the limitations of the current method, which adjusts organizations' monthly capitation payments based on their enrollees' demographic and other characteristics, including their age, sex, basis of Medicare entitlement (aged or disabled), whether they are institutionalized in a nursing home, and their eligibility for Medicaid benefits.¹

HCFA plans to improve Medicare's risk adjustment methods in two stages. In January 2000, HCFA will begin phasing in an interim risk adjustment system in which enrollees' health status will be measured primarily using their demographic characteristics and diagnoses from hospital stays that occurred during the preceding year. In 2004, HCFA intends to replace the interim system with a so-called comprehensive method in which health status would be measured using enrollees' demographic characteristics and their diagnoses from encounters in all major health care settings. This two-stage approach reflects HCFA's expectations about the feasibility and timing for obtaining clinical information from enrollees' health care encounters in different settings.²

We considered many issues in evaluating HCFA's proposal, ranging from the theoretical role of risk adjustment in Medicare+Choice payment policy, to the administrative and operational issues that must be resolved to collect accurate data from enrollees' encounters in a variety of health care settings. Based on our evaluation, we highlight five conclusions:

- Effective risk adjustment is necessary to pay Medicare+Choice organizations fairly for predictable differences in health care spending among their enrollees. Risk adjustment helps to ensure that all beneficiaries have access to care in the Medicare+Choice program, regardless of their health status.
- We generally support HCFA's approach and believe it should be implemented as scheduled.
 Although the interim risk adjustment method has important shortcomings, we believe it represents a substantial improvement over the current method and that its benefits outweigh its costs.

¹ Payments also are adjusted for working aged beneficiaries because Medicare is the secondary payer.

The BBA authorized the Secretary to collect health care encounter data, such as diagnoses, for care organizations provided to their Medicare enrollees. Initially, these data were limited to enrollees' hospital stays, but in 1999, HCFA is permitted to begin collecting similar data for care furnished in other settings.

- Implementing the interim method will reduce Medicare's payments to Medicare+Choice organizations by 7 percent, on average. This is consistent with previous research, which indicated that beneficiaries who enrolled in Medicare risk plans generally were healthier than those who remained in the traditional fee-for-service program.
- We support HCFA's proposed four-year phase-in because it will avoid large abrupt changes in Medicare+Choice organizations' payments, giving them time to adjust their operations and the insurance packages they offer Medicare beneficiaries. The phase-in will also give policymakers time to monitor and evaluate the interim system's effects on organizations and beneficiaries.
- Given its limitations, the interim risk adjustment method should be replaced as soon as possible with a comprehensive method based on enrollees' encounters in all settings. To reach this goal, however, HCFA and Medicare+Choice organizations will have to overcome difficult obstacles.

HCFA's risk adjustment proposal

On January 1, 2000, HCFA will implement an interim risk adjustment system based on the latest version of the principal inpatient diagnostic cost group (PIP-DCG) model, which uses information about enrollees' demographic and other characteristics and their diagnoses from hospital inpatient stays.

Classifying enrollees and determining their expected relative costliness

Under the PIP-DCG model, enrollees are grouped according to their:³

- age and sex;
- eligibility for Medicaid benefits at any time during the previous year;
- eligibility for Medicare by reason of disability (for aged beneficiaries); and
- health status—enrollees hospitalized in the previous year are assigned to 1 of 15 categories depending on the principal diagnoses from their hospital stays, and those not hospitalized are assigned to a category based solely on the other criteria identified above.⁴

To determine the expected relative costliness of each enrollee, HCFA used 1996 spending data from the traditional program to estimate the expected additional spending associated with each characteristic. For instance, the expected relative costliness for a 73 year-old male who was eligible for Medicaid and hospitalized for prostate cancer the previous year is based on the sum of three amounts. HCFA estimated that expected spending associated with this person's age and sex would be \$3,598, his Medicaid status would add \$2,330, and his prostate cancer would add \$2,333. Therefore, his expected costliness would be \$8,261. The national average expected costliness is \$5,100, so this person's expected relative costliness (risk score) would be 1.62.

³ A working aged adjustment of 0.21 also may apply.

For enrollees hospitalized more than once in a year, the interim model groups them into the category that contains the diagnosis with the highest expected costliness.

Because they are based on the previous year's inpatient diagnoses, HCFA's estimated risk scores for hospitalized enrollees will account for the persistently higher average spending that follows serious illnesses. For people not hospitalized, however, estimated risk scores will reflect the average level of spending for those who were healthy and those who were ill but were not hospitalized. Thus, the estimates for people without hospital stays will overstate expected costliness for those who were healthy and understate it for those who were ill.

Other policies

Under the interim system HCFA will also implement policies to address several other issues. First, because reliance on diagnoses from hospital inpatient stays may create an incentive to hospitalize inappropriately, HCFA will exclude:

- diagnoses that may indicate discretionary hospital stays, including those considered to be only
 minor or transitory diseases or disorders, those that were rarely the main cause of an inpatient
 stay, or those that are vague or ambiguous; and
- diagnoses associated with one-day hospitalizations.

In addition, because implementing the interim system will substantially alter aggregate payments and the distribution of payments among organizations, HCFA will phase in the interim system over four years, blending payments under the interim system with those under the current system. According to HCFA's estimates, fully implementing the interim model in 2000 would reduce revenues for some organizations by as much as 16 percent. Such large, abrupt changes could cause some organizations to leave the program or substantially alter the premiums they charge or the benefits they offer to enrollees. A phase-in period will also give policymakers time to monitor and evaluate the effects of the interim system and perhaps make indicated adjustments.

Finally, because enrollees' expected costliness depends on data from the previous year—but complete data for any 12-month period does not become available until six months after the end of the period—HCFA will use risk scores for enrollees that are based on their health status during the 12-month period ending six months before the start of the payment year.

Why risk adjustment is necessary

Effective risk adjustment is essential to ensure access to care in the Medicare+Choice program for all beneficiaries, regardless of their health status. Assuming that the overall average monthly payment amount was correct, accurate risk adjustment would increase the payment rates appropriately for sick beneficiaries, reflecting the predictably higher spending associated with their illnesses, and it would reduce the payment rates for healthy beneficiaries, reflecting their lower expected spending.

The current risk adjustment system, however, is ineffective. Organizations receive a flat payment amount for all beneficiaries within a demographic category, reflecting average expected service use for that group. Because demographic characteristics are only loosely related to health status, however, they account for a very small portion of the predictable variation in spending among beneficiaries. Consequently, Medicare systematically underpays Medicare+Choice organizations for enrollees who have serious illnesses and overpays them for healthy enrollees.

These systematic payment errors create several potential problems. First, they provide organizations with financial rewards and penalties that are based on the mix of sick and healthy beneficiaries they happen to enroll rather than how efficiently they manage needed care. A related problem is that systematic payment errors also create undesirable financial incentives. For instance, paying organizations too little for sick beneficiaries creates strong incentives to avoid enrolling beneficiaries who have or are likely to develop serious illnesses. Further, organizations may be discouraged from developing effective care management programs for serious acute and chronic conditions because doing so might attract more high-cost (and underpaid) beneficiaries. Finally, systematic payment errors also may cause Medicare to spend too much or too little in the aggregate for beneficiaries who enroll in Medicare+Choice plans.

Inappropriate financial rewards and penalties would not occur if all beneficiaries had the same expected spending. Research shows, however, that spending is highly variable among beneficiaries and strongly concentrated in a small proportion of beneficiaries who have serious illnesses. Moreover, beneficiaries' spending levels tend to persist from one year to the next (Garber et al. 1997, MedPAC 1999), reflecting the stability of health status (Kronick et al. 1995). As a result, some of the variability in spending is predictable (Newhouse et al. 1997). Most is not, however, primarily because the timing of costly episodes of care is unpredictable even for people with serious chronic illnesses.

Risk adjustment should raise or lower organizations' payments to account only for the predictable persistence of beneficiaries' spending in the payment year, given what is known about their health status in the preceding year. Thus, risk adjustment policy is designed to pay fairly for predictable differences in spending in the year after an illness but not for random spikes in spending associated with the unpredictable timing of costly episodes. Dealing with the random gains and losses associated with unpredictable episodes is part of the insurance risk organizations face as risk-bearing entities.

In 1995, 11.7 percent of beneficiaries accounted for 74.1 percent of Medicare program spending. At the other extreme, Medicare made no payments on behalf of 19.0 percent of beneficiaries (HCFA 1997).

⁶ Beneficiaries' spending levels often persist over several years because of a chronic illness. However, it is unclear how risk adjustment methods can be designed to account for these effects. Moreover, because predictable spending differences tend to diminish over time, the additional benefit of doing so is uncertain (Garber et al. 1997, Averill et al. 1999).

MedPAC supports the Secretary's proposal

The interim policies described earlier represent HCFA's best effort to improve its risk adjustment methods, given the limited health status information available from hospital stays. On balance, we believe that HCFA's proposed interim risk adjustment system, despite its shortcomings, represents a substantial improvement over the current one because it will capture predictable differences in service use and spending among beneficiaries much more completely. Moreover, implementing this system is an important first step toward developing a more accurate payment system for Medicare+Choice organizations. Therefore, we generally support HCFA's proposal and believe that it should be implemented as scheduled.

The main benefit of the interim system will be improving payment accuracy, thereby weakening some of the undesirable financial incentives organizations face under the current system. Payment accuracy can be evaluated using a predictive ratio, which relates the total spending predicted by a risk adjustment method for a group of people to the actual spending observed for that group. A predictive ratio of 1.00 indicates that payments would be accurate, on average, because predicted spending equals actual spending. A value less than 1.00 indicates underpayment because the risk adjustment system predicts less spending than actually occurred. Conversely, a ratio greater than 1.00 indicates overpayment—predicted spending is greater than actual spending.

Research by Pope and colleagues (1998) indicates that a model similar to the current system (see 'AAPCC-like' column in Table 1) generally has worse predictive ratios than a model similar to the interim system (see 'PIP-DCG' column in Table 1).⁷ For example, when Pope and colleagues divided their analytic sample into total costliness quintiles, the AAPCC-like model had a predictive ratio of 0.47 for beneficiaries in the fifth quintile (representing the highest cost beneficiaries), and the PIP-DCG model had a predictive ratio of 0.86. These results indicate that the PIP-DCG model captures substantially more of the predictable variation in spending among high cost beneficiaries.

The interim system's main limitations arise from its dependence on information from hospital stays. First, Medicare will continue to underpay organizations systematically for some enrollees and overpay for others. Direct health status measures will be available only for beneficiaries hospitalized during the preceding year—fewer than one-fifth of Medicare+Choice enrollees. Consequently, those who had serious conditions but were not hospitalized will be treated as if they were healthy, and Medicare will underpay organizations for these enrollees. Conversely, by grouping enrollees who had serious conditions but were treated without hospital stays with those who actually were healthy, Medicare will continue to pay organizations too much for healthy beneficiaries. The amount of the overpayment, however, will be substantially smaller than under the current risk adjustment system.

The results in Table 1 (and, later, Table 2, p. 9) are based on the assumption that organizations do not change their practice patterns in response to different risk adjustment systems.





Predictive ratios for current and PIP-DCG risk adjustment models (a value closer to 1.00 indicates better prediction)

Costliness quintile (1992)	AAPCC-like model	PIP-DCG model	
First (lowest)	1.97*	1.56*	
Second	1.66*	1.30*	
Third	1.39*	1.09	
Fourth	0.92	0.78*	
Fifth (highest)	0.47*	0.86*	

Note: AAPCC is adjusted average per capita cost. Predictive ratios were normalized by dividing them by the predictive ratio of the overall sample. * Predictive ratio is significantly different from 1 at the .01 level. Data are from the Medicare Current Beneficiary Survey Round 4 (1992) and Round 7 (1993).

Source: Pope et al, 1998.

A second limitation is that paying too little for enrollees who were ill but were not hospitalized might create an incentive for organizations to hospitalize patients unnecessarily. We believe, however, that organizations are unlikely to respond to this incentive for several reasons. Because enrollee risk scores reflect spending in the year following a hospital stay, the increase in payments may be smaller than the expense the organization incurred for the inpatient stay. HCFA's policy of excluding diagnoses from one-day stays will raise the minimum expense organizations would have to incur to obtain higher payments. Further, organizations will not receive increased payments until the payment year after a hospitalization, and then only if hospitalized beneficiaries remain enrolled in the same organization. Finally, organizations would have to influence physicians to hospitalize more patients, which would require overcoming years of encouraging physicians to use alternatives to inpatient care. Organizations also might not want to do this because it could adversely influence treatment decisions and spending for their private market enrollees.

A third limitation of the interim system is that organizations could be financially disadvantaged if, as they claim, they have been effective in substituting ambulatory care for more expensive hospital inpatient care. If they use outpatient procedures in place of inpatient care more frequently than traditional Medicare providers, they would have a disproportionate share of chronically ill beneficiaries without inpatient stays. Because the interim system bases enrollees' expected costliness on traditional Medicare practice patterns, there may be an underpayment bias against these organizations. The importance of this potential problem is unclear, however, because there is little reliable evidence indicating the extent of differences in practice patterns and resource use between Medicare+Choice organizations and traditional providers.

These limitations likely will be largely resolved when the interim model is replaced by a comprehensive one based on diagnoses from all care settings. In the meantime, HCFA could use partial capitation to mitigate payment errors for beneficiaries who were not hospitalized during the preceding year. Under partial capitation, organizations would submit claims for all services and would receive both a reduced traditional Medicare payment and a reduced capitation rate in some actuarially fair combination. This approach would diminish the loss from enrolling beneficiaries whose costs of care exceed the full capitation payment.

The interim risk adjustment system will reduce aggregate payments to organizations

Assuming no change in the current mix of enrollees by health status, HCFA estimated that fully implementing the interim system would reduce aggregate payments to organizations by 7 percent. The interim system also would alter the distribution of payments, with revenues falling by as much as 16 percent for some organizations and rising up to 5 percent for others. This estimated aggregate decline in payments is consistent with previous research, which indicated that Medicare beneficiaries who enrolled in Medicare risk plans were healthier, on average, than those who remained in the traditional program (Riley et.al. 1996, Hill et.al. 1992).

Medicare+Choice organizations have expressed concern that the anticipated aggregate payment reduction would compound the effects of other BBA provisions. One provision, for example, tied annual updates for Medicare+Choice payment rates to the BBA-reduced spending growth in the traditional program. Another reduced those updates by a cumulative 2.8 percentage points over the five-years from 1998 to 2002. And a third reduced the payment rates by gradually carving out the part attributable to Medicare's additional payments for teaching hospitals. To avoid compounding the effects of risk adjustment with those of the other BBA provisions, organizations have recommended that HCFA implement the interim risk adjustment system holding aggregate payments constant (budget neutral).

Organizations' concerns about Medicare+Choice payment levels have some validity. The purpose of risk adjustment, however, is to raise or lower the base payment rates to account for predictable differences in enrollees' spending. If Medicare+Choice enrollees are healthier than average and the interim system reflects that more accurately than the current one, then implementing the interim system should reduce aggregate payments. Concerns about payment levels should be addressed in the context of considering whether Medicare+Choice base payment rates are adequate.

MedPAC supports the Secretary's proposed phase-in

To prevent abrupt changes in organizations' payments, HCFA will phase-in the interim system over four years. We support the proposed phase-in for several reasons. First, a four-year phase- in will give organizations time to manage necessary changes in their operations (such as altering provider contract provisions, care management methods, and data collection systems) and to adjust the additional benefits offered and premiums charged to enrollees. Second, the phase-in period will give HCFA and other policymakers time to monitor and evaluate the effects of the interim system on organizations and beneficiaries. In addition, the phase-in will provide time for HCFA and Medicare+Choice organizations to raise the efficiency and quality of the health status information systems needed to implement more comprehensive risk adjustment and make future improvements in the Medicare+Choice payment system.

A comprehensive model will be better, but implementation will be difficult

In 2004, HCFA plans to replace the interim system with a new one in which health status will be measured using encounter data from all settings. This so-called comprehensive model will mitigate many of the shortcomings of the interim system by more accurately and completely identifying enrollees with serious conditions. MedPAC supports HCFA's move to a comprehensive model but cautions that implementation will likely be difficult.

To implement the comprehensive model, HCFA will have to overcome a number operational and design obstacles, while operating on a very tight time schedule. With respect to operations, the agency must develop strategies and processes that will allow organizations to supply high quality encounter data at affordable cost. With respect to design, the agency must consider the appropriateness of using risk scores based on service use patterns in the traditional program to make payments to organizations that may provide a different mix and quantity of services, especially for enrollees with chronic illnesses.

At the same time, HCFA must also to begin develop the methods and policies that will be needed to maintain effective risk adjustment in the long term. The agency must develop a monitoring system to detect administrative and policy problems that could compromise the effectiveness of the risk adjustment system. Periodically, it must review the risk adjustment classification system and recalibrate the relative costliness weights (risk scores) to reflect the effects of changes in technology and practice patterns. Finally, HCFA needs to develop methods for obtaining information that would better identify vulnerable populations, such as frail elderly beneficiaries.

Several comprehensive models are available for HCFA to consider, including the Hierarchical Coexisting Condition (HCC) model developed by the Center for Health Economics Research, the Adjusted Clinical Groups model developed by Johns Hopkins University, and the Clinical Risk Groups model developed by 3M Health Information Systems. In evaluating these models, HCFA needs to consider how well they reflect health status and predict costs, their data collection burden, and their potential to affect health service practice patterns and payment in unintended ways.

Generally, the predictive power of each model relies on its ability to characterize beneficiaries' health status. By drawing on diagnoses from all sites of service, comprehensive models can provide a better profile of health status than models based on hospital use. Information from other sites of service helps to identify coexisting conditions, illnesses treated in ambulatory settings, and chronic diseases in which no hospitalization occurred. In addition, by helping to identify persistent illness, comprehensive models adjust payments not only for the presenting condition in a health services encounter, but also for the predicted costliness of the underlying condition.



Predictive ratios for PIP-DCG and HCC risk adjustment models (a value closer to 1.00 indicates better prediction)

Costliness quintile (1992)	PIP-DCG model	HCC model	
First (lowest)	1.56*	0.97	
Second	1.30*	1.13	
Third	1.09	1.22*	
Fourth	0.78*	1.02	
Fifth (highest)	0.86*	0.88*	

Note: Predictive ratios were normalized by dividing them by the predictive ratio of the overall sample. * Predictive ratio is significantly different from 1 at the .01 level. Data are from the Medicare Current Beneficiary Survey Round 4 (1992) and Round 7 (1993).

Source: Pope et al, 1998.

In its continuing assessment of comprehensive models, HCFA will need to evaluate the use of multiple years of data to detect persistent illness. While useful in increasing models' sensitivity to chronic and persistent illness, this approach runs the risk of including diagnostic information no longer relevant to beneficiaries' current or future health status. In addition, HCFA must evaluate the coding practices of Medicare+Choice providers to determine whether they accurately and routinely identify important health conditions and the extent to which coding practices affect models' predictive power regardless of how many years of data are included.

Currently available information suggest that comprehensive models predict costs better than the interim risk adjustment system, which results in underpayments to managed care organizations. For example, the HCC model has better predictive ratios than PIP-DCGs in all costliness quintiles but the third (see Table 2).

Because underpayments would be reduced, managed care plans would have more incentive to enroll chronically ill beneficiaries and to create innovative programs for their care. Incentives inherent in the interim system to hospitalize inappropriately or to increase one-day stays would be lessened. In general, managed care organizations have voiced support for comprehensive models that would address the limitations of the interim system. At the same time, they have expressed concern about the costs and burdens of data collection.

Data collection for the comprehensive model

HCFA plans to use encounter data to collect health status information. Medicare+Choice organizations will submit claims-like forms for each encounter, and diagnostic data for beneficiaries will be linked across multiple providers and sites of services. This approach raises concerns regarding data collection burden and data quality. Dealing with the so-called Y2K computing problems may present additional difficulties and affect the timeliness of the data collection process.

Similar to the process used in the interim system, data will flow from providers to Medicare+Choice organizations, who will then submit data through fiscal intermediaries and carriers to HCFA. This process will potentially require the creation of new relationships and data processing systems between all entities involved. Data requirements and processes to assure data quality will need to be developed and implemented. Because data collection will involve all providers and sites of services, a large number of claims will be generated.

MedPAC recommends that HCFA use lessons learned from implementing comprehensive risk adjustment in the Medicare Choices Demonstration Programs. Data collection in these demonstrations revealed that developing a collaborative process with providers, health plans, and fiscal intermediaries and carriers was critical in identifying and resolving data collection issues. HCFA should develop training programs that delineate data requirements and processes. It should evaluate using abbreviated data sets to reduce reporting burden while a full encounter-based system is developed and tested, similar to what was done in the collection of hospital data.

Data quality will be a continuing critical issue. In the traditional Medicare program, studies have shown that diagnosis profiles extracted from medical records and interviews with beneficiaries do not parallel diagnostic data in submitted claims for ambulatory care (MedPAC 1998). Under capitation, payment incentives for proper coding are weaker because of their indirect relationship to payment. HCFA must develop mechanisms to monitor data quality as the comprehensive risk adjustment system is developed and implemented.

Due to these concerns, MedPAC has encouraged HCFA to explore developing data collection method that is less costly, easier to coordinate across providers, and that produces better data. A possibility is to have organizations maintain a central record with information on each enrollee's diagnoses, conditions, and resource use that HCFA could use to determine enrollees' expected relative costliness. Organizations could establish such records when completing the health status assessments that the BBA requires when beneficiaries enroll in health plans. Then, records could be updated with information from subsequent health system encounters at sites of care relevant to the comprehensive model.

Although a central record system is a possibility to explore, MedPAC is not recommending this approach at this time. Before implementing this or any other alternative to the claims-based approach, HCFA must assess its costs relative to its benefits. In addition, the data collection method must preserve beneficiaries' confidentiality. Even if a central record system were to meet these criteria, MedPAC does not believe it could be ready for implementation in 2004. HCFA will have to begin data collection no later than mid-2002, and it would take time to investigate and establish this method.

Risk adjustment for special populations

For certain populations, diagnostic data alone will not provide a complete picture of health status. The frail elderly are a special concern because they tend to be older, poorer, and have more health care needs relative to the average beneficiary. Information on these beneficiaries' functional status often provides the best data to predict health service needs and costs, but is not available on typical claims data.

Medicare has developed targeted managed care programs for these beneficiaries, including the Program of All-Inclusive Care for the Elderly (PACE), the Social Health Maintenance Organization program, and EverCare. Because the interim system is inadequate in predicting costs for these populations, HCFA has decided to exclude these programs from the risk adjustment system until a method is developed that better characterizes the health status and resource needs of frail beneficiaries. The agency is studying ways to improve risk adjustment for the special managed care programs, and based on the results of this work, it will consider whether risk adjustment in Medicare+Choice can be tailored to better meet the needs of frail beneficiaries. MedPAC supports this approach and encourages the development of an improved risk adjustment system applicable to all frail beneficiaries, whether they are enrolled in targeted programs or in Medicare+Choice. The Commission believes that payment should be based on the characteristics of frail beneficiaries, not on the type of program in which they are enrolled.

Future considerations

In addition to preparing to move to a comprehensive model, HCFA also must begin developing the methods and policies needed to maintain and refine effective risk adjustment. In the longer term, issues such as the model specification, data quality, and impact of risk adjustment on access and quality of care will need to be monitored and evaluated. First, the model specification will need to be continuously monitored and updated to assure that risk scores reflect changes in practice patterns and advances in technology. In addition, it may be necessary to recalibrate the risk scores to reflect managed care practice patterns, rather than the current approach, which uses risk scores based on service use patterns in the traditional fee-for-service program.

Second, data quality will need to be monitored on an on going basis. Changes in coding practice will need to be assessed and the model changed accordingly. To reflect the health status of frail beneficiaries or those with chronic illness more accurately, HCFA may need to collect additional data on functional as well as health status. Finally, it will be critical to assess the impact of risk adjustment on access to care and quality. MedPAC encourages HCFA to develop a research agenda that will assess these issues and make comparisons to the fee-for-service program.

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